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R SS CONSTRUCTION AT SHANG-HAI NAVAL BASE AND SHIPYARD KIANG-NAN DOCK COMPANY, CHINA

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R SS CONSTRUCTION AT SHANG-HAI NAVAL BASE AND SHIPYARD KIANG-NAN DOCK COMPANY, CHINA

ABSTRACT

1. This report describes double-hulled submarine construction in China by detailing R submarine (SS) construction procedures at Shang-hai Naval Base and Shipyard Kiang-nan Dock Company [redacted] 25X1
[redacted] The report is based on photography [redacted] 25X1
[redacted] and contains text, a location map, nine photo- 25X1
graphs, and references.

INTRODUCTION

2. Submarines are built at four shipyards in China -- Hu-lu-tao Naval Base Shipyard and Port Facility [redacted] 25X1
Wu-han Shipyard Wu-chang [redacted] Huang-pu Naval Base and 25X1
Shipyard [redacted], and Shang-hai Naval Base and Shipyard 25X1
Kiang-nan Dock Company (Figure 1). The Kiang-nan shipyard (Figure 2) is the only one of the four where much of the construction takes place in open areas. Only jigs (cradle-like devices used in the fabrication process) and the top sections of outer hull have been observed in open areas at the other three shipyards. Both items have been precisely measured, and the widths of the jigs and the top outer hull sections are never greater than the beam. Therefore, the identification of jigs with a width greater than the beam of the R SS indicates the construction of a submarine with a larger beam. The jigs and the top sections of outer hull have provided the best clues to present or future construction of submarines at three of the four shipyards prior to launch.

BASIC DESCRIPTION

3. Double-hulled submarine construction in China can be described by detailing R SS construction procedures at Shang-hai Naval Base and Shipyard Kiang-nan Dock Company.

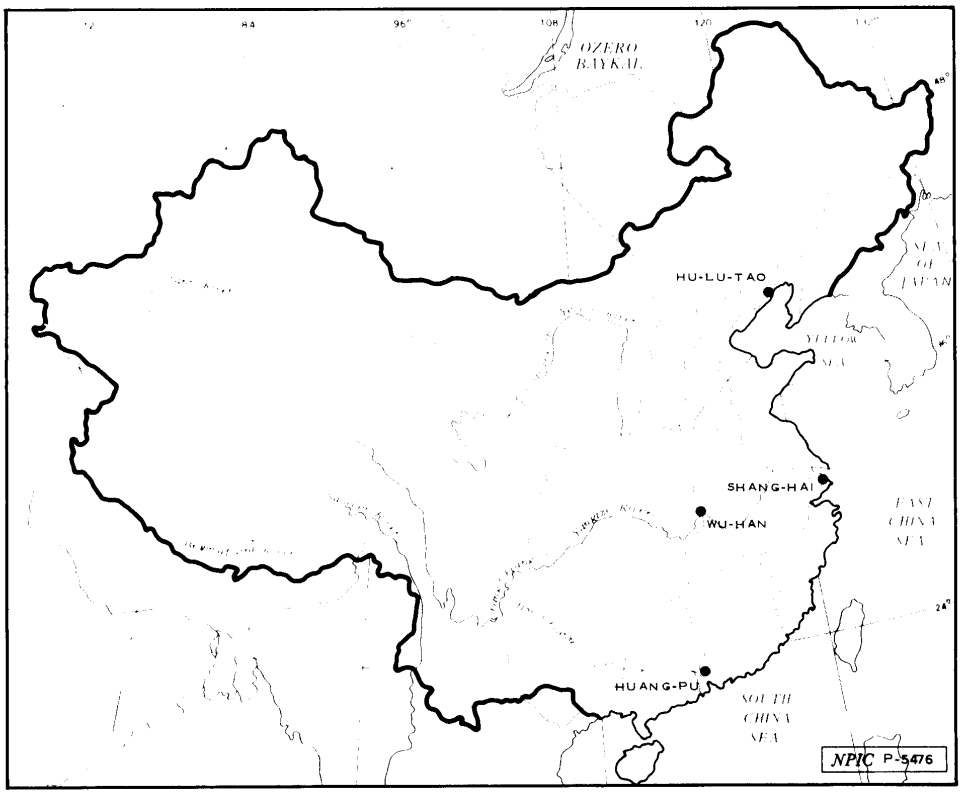

FIGURE 1. LOCATION MAP

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Materials Storage

4. Steel plate for use in shipbuilding is stored in the steel plate storage area adjacent to the large fabrication building.

Fabrication

5. Steel plate from the storage area is cut and shaped for use in fabricating R SS pressure hull sections and outer hull sections in the large fabrication buildings. The hull plate is then moved to the platen (fabrication) area at the head of the submarine buildingways (Figure 3). It is fabricated into pressure hull sections probably in two moveable weather sheds and into outer hull sections in the jigs out in the open (Figure 4). Jigs are also used to join three-quarters of an outer hull section to a completed pressure hull section (Figure 5) to form a submarine subassembly section. These subassembly sections are stored in the area near the turntable (Figure 6). Subassembly sections are then joined to form three modular midsections in the large fabrication building (Figure 7).

6. The modular midsections are moved from the large fabrication building to the submarine buildingways by a rail, transverser, and turntable system (Figure 8). The upper portion of the rails on the submarine buildingways appears to be part of a hydraulic mechanism which permits the track to assume an inclined or horizontal

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position. Such a procedure would facilitate the transfer of a modular midsection from the transverser to the inclined buildingways (Figure 9).

Assembly

7. After three modular midsections have been moved onto the buildingways, they are welded together. Then the stern and bow sections are added to complete the submarine hull.

8. During the assembly phase on the buildingway, sections of pressure hull are removed to allow access to the engineering spaces. While the sonar array is being installed the bow section is covered (Figure 10). Near the end of the assembly phase, the sail with the beaver tail exhaust port is placed in position on the submarine hull and the pressure hull sections from the engineering spaces are replaced. Finally, the sections which form the top part of the outer hull are emplaced.

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Launch and Fitting Out

9. The submarine is then launched, and the final fitting-out process begins at the upstream fitting-out wharf (Figure 2).

REFERENCES

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MAPS OR CHARTS

SAC. USATC, Series 200, Sheet 0492-7, scale 1:200,000

REQUIREMENT

NPIC/IEG/EGD/SECB Project 120401NG

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